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CONTRACT AT(49-7)3019 WITH THE GOVERNMENT OF SPAIN, JUNTA DE ENERGIA NUCLEAR, MADRID (DR. EDUARDO RAMOS RODRIGUEZ, PRINCIPAL INVESTIGATOR)

The Palomares accident, which occurred on January 17, 1966, resulted in negotiations between the governments of the United States and Spain that are continuing today. One of the early results of these negotiations was an agreement (the Hall-Otero agreement) between the two governments that established a four-point follow-up study designed to evaluate possible health and environmental consequences in the contaminated area. The program was to be conducted by the Division de Medicina y Protection of the Junta de Energia Nuclear (JEN) in Madrid, under the leadership of Dr. Eduardo Ramos. Equipment, technical assistance, and operational support were to be provided by the U.S. Atomic Energy Commission. Pursuant to the agreement, the subject contract was initiated on April 7, 1967, and has provided approximately \$25,000 per year in operating dollars thereafter. A substantial quantity of equipment has also been made available to the Spanish scientists. In addition, LASL scientists have provided technical assistance in the planning of the follow-up program and in the instrumentation/analytical area. Wright Langham and other LASL scientists worked with the Spanish scientists immediately after the accident. In the fall of 1971, Dr. Langham returned to Palomares and Madrid to consult with Dr. Ramos and other members of the Junta's technical staff. During the past year, Dr. C. R. Richmond and Mr. P. N. Dean of the LASL staff made separate visits to Spain. Dr. Richmond reviewed the scientific program while Mr. Dean assisted the Junta staff in getting new analytical instruments into operation.

Enclosed is information relating to the Spanish study (Project Indola) that I have just received from Dr. Richmond. The enclosures include a detailed report of Dr. Richmond's trip to Spain plus copies of the principal scientific reports on the biomedical-environmental follow-up of the Palomares incident that have appeared to date.

In his trip report, Dr. Richmond summarizes the history of Project Indola and points out some of the problems that have limited progress in the scientific effort. He then presents a list of recommendations relative to the scientific program and its management in the future.

It is clear that the environmental aspects of Project Indola are at least as important as the radiological/medical follow-up of the human population. From an environmental point of view, the Palomares situation constitutes an ideal experimental situation for the study of transport of nuclides within a delimited ecosystem. By means of alpha spectrometry, it is possible to study the behavior of both uranium and plutonium isotopes in the contaminated area. With respect to the medical study, U.S. military personnel who participated in the clean-up operation at Palomares may be of as much interest as the Spanish inhabitants of the affected region. However, none of the human exposures appears to have been serious; therefore, the medical effort will probably amount to more of a routine radiologic survey (in accord with the Hall-Otero agreement) than a true research exercise.

In light of the Richmond report and recent changes in location of key individuals (Richmond and Dean) associated with Project Indola, I think it is desirable that the DBER staff review all aspects of the Spanish study in order to assure that satisfactory progress will be achieved in the future. I would suggest that we consider the following points:

(1) Review DBER management of Project Indola

At present, John Harley, as a member of the DBER staff, is responsible for the surveillance of the project. In my opinion, it would be desirable to have a small group of DBER scientists in Germantown keep abreast of developments in Spain and meet with Dr. Harley periodically to discuss the status and needs of the project. In particular, it would seem advisable to get the staff of the Environmental Programs actively involved in the review and planning activities. Perhaps, one or two members from each of the Programs could be grouped into a category team to work with Dr. Harley.

(2) Review the matter of contractor assistance

Because of Wright Langham's early involvement in the post-contamination activities at Palomares, the LASL scientific staff (Langham, Moss, Richmond, Dean, and several others) has provided assistance to the Junta scientists on a continuing basis since 1966. Now that Wright Langham is dead and both Chet Richmond and Phil Dean are moving to new locations, most of the key personnel at LASL (with respect to Project Indola) will soon be gone. This raises the question of who should provide assistance in the future. The importance of such assistance cannot be over-emphasized. One of the main recommendations in Dr. Richmond's report (see page 7) is that "---the AEC needs a primary technical contact in the United States who can assist the JEN personnel in

technical matters and who can make the needs of the JEN known in Washington." Dr. Richmond further recommends that this person should visit JEN each year. He also feels--and I agree--that this and other manifestations of AEC interest in the Junta's scientific effort may well determine the ultimate success or failure of Project Indola. Because of his knowledge of the program and the rapport he has established with Dr. Ramos and other JEN scientists, Dr. Richmond would be the ideal technical contact, in my opinion. Moreover, in his new position at ORNL, he will have excellent backup in all of the relevant technical areas. I can think of a few other possibilities, but all are of lesser interest.

(3) Review the scientific program

The program should be reviewed in the light of the kinds of information that may be obtainable, U.S. and Spanish needs for information, the capabilities of the JEN scientific staff, and available resources. The suggestions included in Dr. Richmond's report provide an excellent focus around which a program review could be conducted.

(4) Encourage the JEN staff to disseminate the information they have already collected

This is another important recommendation in Dr. Richmond's report. Much information of practical value has been gained from the Palomares incident and its aftermath. It is important that the lessons learned regarding hazards, cleanup, and long-range consequences receive the widest possible circulation, both within the scientific community and among the general public. I believe the AEC's primary technical contact could play a key role in facilitating the desired reporting of technical information.

One final point that should be emphasized is the very special nature of Project Indola. For obvious reasons, political factors are perhaps as important as scientific considerations. Because of this and the international character of the project, special procedures must be followed and some compromises must be endured. In particular, it is important that all American scientists who work with the JEN staff gain the respect and confidence of Dr. Ramos and his colleagues.

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Enclosures:  
As stated

*I agree that Richmond's . . . Indola . . .  
with this project should continue in . . .*